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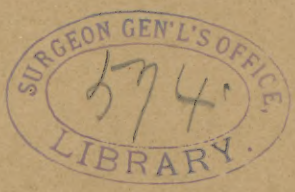
Note on the Symptoms and Diagnosis of Tuberculosis of the Bladder.

BY

CHARLES GREENE CUMSTON, B.M.S., M.D.

presented by the author —



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NOTE ON THE SYMPTOMS AND DIAGNOSIS OF TUBERCULOSIS OF THE BLADDER.

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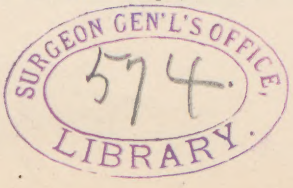
Tubercular cystitis is often from the onset marked by a frequent desire to urinate, but this symptom is common to all inflammatory conditions of the bladder and is in no way peculiar to tuberculosis—indeed, the same may be predicated of all symptoms observed in this affection. It is only by the presence of several symptoms that a conclusive diagnosis can be made.

At first there is a desire to urinate perhaps once every two hours; later the intervals may be abbreviated to five or ten minutes. Micturition is as frequent by night as by day; sleep is impossible, and work is equally so, while rest has no effect in diminishing the frequency of the calls of irritated nature. Boursier remarks that the desire to urinate is even more imperative during the night, and attributes this to a congestion of the bladder produced by the dorsal decubitus and by sleep; he also states that the irritation provoked by the presence of tubercular granulations in the region of the neck of the bladder often produces the same effect.

Physiology furnishes us with another explanation of this symptom. My former and esteemed teacher, Professor Schiff of Geneva, says: "When the muscles of the bladder are not contracted, the organ possesses a certain capacity; it fills with urine, and the desire to urinate is then experienced. But if the muscles are contracted, a little urine puts them on the stretch, and micturition becomes necessary. The urine does not increase the size of the cavity of the bladder, but simply fills it, and before there is distention a desire to urinate is felt."

In tubercular cystitis the walls of the bladder are contracted and the capacity of the viscus is considerably less than normal; micturition is painful — sometimes extorting cries from the patient. The first drops are accompanied by a sharp, burning sensation, but the pain attains its maximum at the end of the act. I believe this is due to the contraction of the bladder-walls, as well as to the passage of urine over the ulcerated surface. This symptom is explained by pathological anatomy, for we know that the ulcerations located about the neck of the bladder and the orifices of the ureters—their favorite seat—are particularly well developed; consequently, when the neck expands to allow the urine to escape, there is an immediate access of



pain, and when the organ is about empty the muscles contract with energy in order to expel the last drops of urine, the neck contracts spasmodically, and the most intense pain is experienced.

Pain is also present in the intervals between the acts of micturition, but of a different character. The patient complains of a painful sensation of pressure, heat, and weight, in the hypogastric region—a sensation which varies in its intensity, having exacerbations according to the posture of the patient or the amount of exercise taken; it may extend to the perineum, rectum, or anus.

Guyon has justly compared the hæmaturia, which appears sometimes as an initial symptom of vesical tuberculosis, to hæmoptysis occurring in tuberculosis of the lungs. This symptom is important, as it often leads us to suspect the real nature of the affection. At the end of micturition a few bloody drops are noticed at the meatus, or the hæmaturia may be more abundant, consisting of pure blood. In the average case no explanation can be given of this symptom, which appears incidentally and without provocation, and varies in duration with each case, offering nothing that is characteristic. In cases of calculus the hæmaturia disappears under rest, while the same repose has no marked influence on the hæmaturia of tubercular cystitis. After one of these hæmorrhages — which, let it be said, are more frequent in the beginning of the affection—a clot will sometimes form in the bladder and plug the urethral orifice, thus producing complete retention of urine; in such cases the fundus of the bladder may be found above the pubes, and has even been known to reach the level of the umbilicus.

The spasmodic contraction of the membranous urethra, caused by the irritation of the tubercular lesions at the neck of the bladder, provokes dysuria or even retention. It is characterized by repeated and painful efforts at micturition; changes in the form of the jet have been observed, its calibre and force diminishing under the influence of the contracting urethral sphincter. These spasms may easily lead to a mistaken diagnosis, and demand the introduction of a metallic sound.

Guyon and Boursier have well established the distinction between false and real incontinence. In the former the urgent need of urination is felt, say, every ten minutes, and a few drops are voided each time; while in real incontinence the sphincter of the membranous urethra fails to contract, and the urine comes away drop by drop without warning. This latter condition is met with when the prostatic portion is filled with cavities, produced by the breaking-down of cheesy masses.

The general opinion of writers on tubercular cystitis is that sounding should be performed as little as possible. The passage of the

instrument necessarily provokes an irritation, and is often followed by hæmaturia or a revival of inflammatory symptoms. The sound demonstrates tenderness at the neck of the bladder, and at the same time furnishes the dimensions of the organ.

By abdominal palpation the sensitive and thickened walls of the bladder are found behind, and sometimes (when there is retention) above, the pubes.

A most important examination — one which should never be forgotten, and which often confirms the diagnosis — is that of the condition of the testicles, and particularly of the epididymis. If these organs are found increased in size, deformed, with a lumpy surface and a hard, resistant feel, and if the cord contains a series of indurated nodules, painful on pressure or spontaneously, an excellent argument is furnished in favor of the diagnosis of tuberculosis. The seminal vesicles and the prostate give similar indications; they should always be carefully explored by way of the rectum.

When symptoms of cystitis have declared themselves, the urine is usually cloudy—sometimes a whitish deposit of pus accumulates at the bottom of the glass; at other times, however, the changes can only be recognized by a microscopical examination. The reaction is sometimes acid with a moderate amount of albumen, while at other times it is alkaline. In the muco-purulent deposit, pus corpuscles, degenerated red corpuscles and epithelial cells are found.

According to Guyon, when pus is present in large quantity there exists, besides the tubercular cystitis, changes in the ureters and in the pelves and calyces of the kidney. During the progress of the disease, renal hypersecretion has been observed, rendering the urine limpid. According to Boursier, this polyuria is related either to a reflex action on the parenchyma of the kidney or to destructive lesions of that organ. The urine, being secreted in large quantities, washes the pus away, and the cloudiness disappears.

Diagnosis.—The symptoms of tubercular cystitis are quite characteristic when they are all present. It is also well to bear in mind that there may be no symptom whatever. The diagnosis is thus frequently rendered most difficult. An insidious and slowly progressing cystitis, appearing without apparent cause in a patient who has enjoyed good health up to the time of its appearance, and who presents successively the above-mentioned symptoms, should be considered as probably tubercular. Examination of the genito-urinary system may furnish proof of the alterations described, and thus establish the diagnosis.

The discovery of Koch's bacillus in the urine will decide the question. This is a difficult matter, however, as Dr. de Gennes explains—for, in the first place, the bladder lesions may be only slightly advanced,

and, secondly, the volume of urine is so great in proportion to the space occupied by the micro-organisms. This latter difficulty can be overcome if the specimen be treated in a centrifugal apparatus. When assistant pathologist to the Boston City Hospital, I was able, by dint of diligent search, to detect the bacillus of tuberculosis in two cases. For purposes of examination, take the last portion of urine voided, or that which forms the lowest layer after standing.

As to the technique of staining the preparations, it is essentially the same as for sputum. Ziel's carbol-fuchsin solution has been most satisfactory in my hands.

Tubercular cystitis may be mistaken for idiopathic or simple catarrhal inflammation of the bladder, *a frigore*, or following venereal or alcoholic excess, traumatism, etc.; but the progress and termination of this malady are entirely different from those of tubercular infection; recovery is rapid under appropriate treatment, or may even be spontaneous.—So-called irritable bladder, regarded by the English profession as vesical neuralgia, has often been mistaken for commencing tuberculosis of that viscus; the coexistence of other neuralgias in the same subject, the complete disappearance of the pain between the paroxysms, and the evolution of the affection, distinguish the former malady.—In gonorrhœal cystitis there is frequent desire to urinate, hæmaturia, dysuria, etc., but nothing is complained of in the intervals between the acts of micturition; the inflammation produced by the gonococcus is most acute, decided symptoms appear early, and an explanatory gonorrhœa is present. Cystitis appearing in a patient who for months or years has had a urethritis of gonorrhœal origin, is not necessarily of the same nature as the urethritis; the chronic lesion of the genital canal may have served as a point of entrance for the tubercular infection. Treatment with instillations of nitrate of silver, as practiced by Guyon, will often prove the gonorrhœal nature of the cystitis by an amelioration, or even recovery.—In calculus, the acute pain is usually brought on by exercise, such as riding or walking, and complete rest suffices to overcome the pain. The same may be said of hæmaturia. In cases of doubt, the sound may be employed to advantage in clearing up the diagnosis.—In prostatic hypertrophy, the desire to urinate is especially felt at night, and in the majority of cases the age of the patient will exclude tuberculosis.—The distinction between urethral stricture and vesical tuberculosis is not always easy, because the spasm accompanying the latter affection simulates stricture most closely. If the patient presents a history of the usual antecedents of stricture, a *bougie à boule* will determine the point; spasmodic contraction due to tubercular cystitis gives way to this exploration, while a stricture proper will distinctly hinder the passage of the instrument.—

As to papilloma and carcinoma of the bladder, both produce severe hæmaturia, while in tuberculosis, as a rule, only a few drops of blood are voided at the end of micturition. Thompson advises the introduction of a slightly curved sound into the bladder, and estimation of the thickness of the tissues by means of the finger in the rectum, after which the sound may be withdrawn and palpation above and behind the pubes practiced. In thin patients the thickness of the anterior wall is thus quite easily estimated. By further use of the sound, bringing it in contact with different areas of the bladder-walls, the location of any resisting body—if such there be—may be made out. The cachexia of carcinoma furnishes a diagnostic symptom; advanced age is on the side of malignant disease. Microscopic examination of pieces of the neoplasm—when the surgeon is fortunate enough to find some in the urine—is decisive.—Lastly, in women, among the symptoms of uterine affections are a sensation of weight over the hypogastric region, and frequent desire to urinate; consequently, when such symptoms are present, the uterus and adnexa should be carefully examined to discover their real source.

In cases of great uncertainty the cystoscope may be resorted to, and for those who are familiar with its use it is strongly to be recommended; nevertheless, of all diseases of the bladder, tuberculosis is the most misleading in cystoscopy, and many a faulty diagnosis will be made if great care and patience are not exercised in the examination. Like any other instrument, the cystoscope in a tuberculous bladder may be the cause of severe hæmaturia, and the surgeon should have this fact before him when it is employed.

When the diagnosis of tubercular cystitis is made, one question remains to be solved: Is the infection primary, or secondary? If the patient has enjoyed perfect health up to the time of the appearance of the bladder symptoms, and a general examination reveals no sign of tuberculosis in other organs, the slow progress of the disease at the same time excluding other than tubercular processes, we may conclude that we have to do with a primary form of the disease.

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MEDICINE.

This is the title of a new medical monthly magazine that has made its appearance upon our exchange table, and which we most heartily welcome. It is the result of the enterprise of Mr. Geo. S. Davis, the well known medical publisher, ably seconded editorially by Doctor Harold N. Moyer, of Chicago, and a staff of expert collaborators and contributors, representing the foremost and best medical talent of the Northwest. *Medicine*, moreover, is representative of no college, clique, publishing house, or manufacturing concern, but is merely a high class cosmopolitan medical publication. Such names as Moyer, W. L. Baum, D. A. K. Steele, Hobart A. Hare, G. F. Lydston, W. S. Christopher, S. S. Bishop, N. S. Davis, Jr., J. B. Herrick, G. H. Weaver, H. T. Patrick, M. D. Ewell, Henry Gradle and Norman Bridge associated therewith give abundant assurance of character for the future. The April number presents original articles on "Herpes Zoster Gangrenosus," "Sarcoma of the Kidney in Children," "Cardiac Sedatives," "Prostatic Tuberculosis," "Medical Septicæmia," and "Effects of La Grippe on the Nose, Throat, and Ear." A notable innovation, one we heartily commend, is the absence of "editorials," since it is to be presumed the editor will give expression to his opinions in direct personal contributions.

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EDITOR.

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